The impact of public policy on health behaviors: The case of obesity

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Presentation Overview

• Thinking about obesity as part of a broader social system

• Rationale for public policy
  • Market and government failures

• Impacts of strong policies on environments, behaviors, and health outcomes
  • Example 1: competitive food and beverage laws
  • Example 2: food and beverage taxation

• Resources for further information
Thinking about obesity through a systems lens
Levels and sectors of influence on obesity prevention efforts

Source: Institute of Medicine (IOM), 2012; Adapted from IOM, 2007
Obesity Systems Map (Foresight Group, 2007)
Mapping Systems Change: The Case of Reducing Over-Consumption of Sugar-Sweetened Beverages

Sector of Action

• Business/Private
• Public
• Citizens/Civic Organizations
• Health Care
• Worksites/Employers

Source: IOM, 2012

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Rationale for public policy: Market and government failures
Market failures as rationales for public policy

- Vulnerable populations are not protected
  - Children are not rational consumers
- “Free” market under-provides information
  - Led to menu/calorie labeling policies
- Consumers prioritize immediate gratification over long-term consequences
  - Do most people think about the long-term effects of drinking one (two, three) a sugary beverage each day?
  - Over-consumption of high fat, sugary foods and beverages leads to obesity and related disorders including Type 2 diabetes, heart disease, stroke, etc.
- Externalities—individuals do not bare the true costs of their decisions
  - $190B in annual health care costs, $5B additional in jet fuel to fly heavier Americans

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Governments fail too!

- Rules too specific
- Rules too broad
- Arbitrary rules
  - NYC 16oz beverage portion size rule
- Conflicting rules
- Letting the market decide…
Government failure—Letting the market decide—and look where we are now!
How strong public policies can make a difference
Competitive food and beverage policies and their impact
Sugar-sweetened beverage laws

State laws that prohibit all sugar-sweetened beverages reduce the prevalence of middle school student in-school SSB access and purchasing, but do not reduce overall consumption AND soda-only bans do not work.

California competitive food laws

California has particularly strict laws regarding fat, sugar, and caloric content of competitive foods

High school students in CA reported less in-school intake of fat, sugar, and total calories compared to students in states that do not regulate competitive food nutritional content

<table>
<thead>
<tr>
<th></th>
<th>California</th>
<th>Other states</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar (g)</td>
<td>19.8</td>
<td>30.9</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>14.2</td>
<td>20.4</td>
</tr>
<tr>
<td>Total calories</td>
<td>352.6</td>
<td>509.1</td>
</tr>
</tbody>
</table>

Source: Taber, Chriqui, and Chaloupka, *Arch Ped and Adol Med, 2012*
Competitive food laws

Students gain less weight if they are in states with strong, specific competitive food nutrition standards

Adjusted BMI change

Source: Taber, Chriqui, Powell, Perna, and Chaloupka, *Pediatrics, 2012*
Competitive food laws

Laws must be consistent over time and across grade levels. Students who were exposed to weaker laws as they moved from elementary to middle school gained just as much weight as those who were never exposed.

Chart: Adjusted BMI change

Source: Taber, Chriqui, Powell, Perna, and Chaloupka, *Pediatrics* 2012
Competitive food laws – racial differences

Among Hispanic girls, in-school purchasing of sweets, salty snacks, and SSBs increased in states with no laws but decreased in states with strong laws.

Changes in weekly purchases

<table>
<thead>
<tr>
<th></th>
<th>Sweets</th>
<th>Salty snacks</th>
<th>SSBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No laws</td>
<td>0.56</td>
<td>0.58</td>
<td>0.52</td>
</tr>
<tr>
<td>Strong laws</td>
<td>-1.11</td>
<td>-0.66</td>
<td>-0.1</td>
</tr>
</tbody>
</table>

Source: Taber, Chriqui, Powell, Perna, and Chaloupka, under review, *J Adol Health*
Competitive food laws – can help to breakdown inequities

Changes in laws between 2003 and 2006:

<table>
<thead>
<tr>
<th></th>
<th>Blacks</th>
<th>Hispanics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stronger in 2006</td>
<td>13.0%</td>
<td>43.0%</td>
</tr>
<tr>
<td>Weaker in 2006</td>
<td>33.5%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Black boys had lower BMI change if they lived in states that strengthened their laws between 2003 and 2006

<table>
<thead>
<tr>
<th></th>
<th>Difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No laws</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stronger laws</td>
<td>-1.48</td>
<td>0.001</td>
</tr>
<tr>
<td>Weaker laws</td>
<td>0.29</td>
<td>0.22</td>
</tr>
</tbody>
</table>
Food Prices and Taxation
Food prices and consumption

- Extensive economic research on the impact of food and beverage prices on consumption of various products; estimates suggest 10% own-price increase would reduce:
  - Cereal consumption by 5.2%
  - Fruit consumption by 7.0%
  - Vegetable consumption by 5.9%
  - Soft drink consumption by 7.8%
  - Sweets consumption by 3.5%
  - Food away from home consumption by 8.1%

Source: Andreyeva, et al., 2010
Food prices and consumption

- Estimates from more recent research suggest similar or even larger effects for 10% price increases:
  - Sugar sweetened beverage consumption falls by 12.1%
  - Fast food consumption falls by 5.2%
  - Vegetable consumption falls by 4.8%
  - Fruit consumption falls by 4.9%

Source: Powell et al., *Obes Rev.* 2013
Food prices and weight outcomes

• While mixed, weight of the existing evidence suggests that changes in relative prices for healthier and less healthy foods may affect weight outcomes, with greater impact on:
  • Lower income, less educated populations
  • Younger populations
  • Populations at greater risk for obesity

Source: Powell et al., *Obes Rev.* 2013
Implications for obesity prevention

• Policy options for altering relative prices include policies that:
  • Increase prices of less healthy options
    • Taxes
    • Elimination of corn subsidies
    • Disallow purchases under food assistance programs
  • Reduce prices of healthier options
    • Subsidies
    • expanded or favored treatment under food assistance programs

Source: Powell et al., *Obes Rev.* 2013
Why tax sugar-sweetened beverages?

• Link to obesity
  • Several meta-analyses conclude that increased SSB consumption causes increased weight, obesity
  • Increased calories from SSBs not offset by reductions in calories from other sources
  • “Empty calories” that provide little or no nutritional benefits

• Other health consequences
  • type 2 diabetes, lower bone density, dental problems, headaches, gout, cardiovascular disease, anxiety and sleep disorders
U.S. SSB Consumption in Calories by Age, 2007-2008

SSB consumption (kcal)

Age group

Source: National Health and Nutrition Examination Survey (NHANES) 2007-2008, author’s own calculations

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www.bridgingthegapresearch.org
Soda Consumption and Obesity Prevalence
U.S., 1980-2008

Source: National Health and Nutrition Examination Survey (NHANES) 2007-2008, author’s own calculations

www.bridgingthegapresearch.org
Carbonated Beverage Prices & Youth Obesity
1995-2009, Inflation Adjusted

Source: BLS; YRBS

www.bridgingthegapresearch.org
Explosive Growth in Soda Industry Political Expenses, 2005-2010

Source: Center for Science In The Public Interest, 2011

www.bridgingthegapresearch.org
Sales Taxes on Selected Beverages, All U.S. States, July 1, 2012

Mean State Sales Tax (All States=5.01%)

Mean State Food Tax (All States=0.96%)

Disfavored Amount

Note: Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).
Sales Taxes on Selected Beverages
Taxing States, July 1, 2012

Mean State Sales Tax (46 states with tax @ avg=5.56%)
Mean State Food Tax (14 states with tax @ avg=3.5%)

Note: Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).
Global Beverage Taxes

• Several countries recently adopted SSB taxes as part of effort to curb obesity; a few examples:
  
  • Denmark: DKK 1.58/litre (US$0.28) for beverages with >0.5 grams of sugar/100 ml; DKK 0.57 (US$0.10) for <0.5 grams/ml
  
  • France €7.16/100 litres (US$9.39) on beverages with added sugars and artificially sweetened beverages
  
  • Hungary: 5 forints/litre ($0.024) on soft drinks; 250 forints ($1.18) on energy drinks; 100 forints on pre-packaged sugar-sweetened products (>25-40g added sugar per 100g; varies by product)
  
  • Nauru: 30% *ad valorem* tax on prices of imported carbonated soft drinks, cordials, flavoured milks, and drink mixes containing sugar

*Source: Chriqui, et al., forthcoming*
• Revenue generating potential of beverage tax is considerable

  • SSB Tax calculator at:  
    http://www.yaleruddcenter.org/sodatax.aspx

  • Tax of one cent per ounce could generate:  
    • $14.9 billion nationally if on SSBs only  
    • $24.0 billion if diet included  

  • Tax of two cents per ounce:  
    • $21.0 billion nationally, SSBs only  
    • $39.0 billion if diet included  

  • Earmarking tax revenues for obesity prevention efforts would add to impact of tax
Resources
For more information: www.bridgingthegapresearch.org

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